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EXAMINER

LUU, THANH X

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 12/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,899

Applicant(s)

SLETTNES, TOR

Examiner

Thanh X Luu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-44, 48-50, 54-59 and 62-65 is/are allowed.
- 6) ☒ Claim(s) 1-27, 47 and 51 is/are rejected.
- 7) ☒ Claim(s) 28-30, 45-46, 52, 53, 60 and 61 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to a preliminary amendment filed February 14, 2002. Claims 1-65 are currently pending.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the scanner, the integrating detector, the computer, the stepper motor, the scan window of claims 17-20, 54-59 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1, 3, 4, 17, 23 and 31 are objected to because of the following informalities:

In claims 1, 17, 31, it is unclear if "a scan window" mentioned in the body of the claims refers back to a scan window mentioned in the preamble.

In claims 3 and 23, last two lines, it is unclear if "a velocity-normalized integrated signal" calculated according to the claimed equation the same velocity-normalized integrated signal or a different velocity-normalized integrated signal.

In claim 4, it is unclear if "an integrated signal" is the same integrated signal as mentioned in the earlier claims or a different integrated signal.

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Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 16, 25, 27, 47 and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 16, it is unclear in its given context if "a plurality of channels" and "one or more channels" refers to the same channels or different channels. If the same channels are being referred to, it is unclear how "a plurality" can be "one or more."

Regarding claim 25, "the stepper motor" lacks proper antecedent basis.

Regarding claims 27, 47 and 51, an integrating detector is already claimed in parent claim 26. It is unclear in its given context what Applicant intended to claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5, 10, 14-17, 19, 21, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamensky (U.S. Patent 5,072,382).

Regarding claims 1, 5, 10, 14 and 15, Kamensky discloses (see Figure 1) a data collection method for scanning a scan window comprising one or more channels comprising the steps of: detecting an integrated signal across the scan window (sample 28) comprising one or more channels (see Figure 4, strips; and column 10, lines 40-55)

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using an integrating detector (20, 22, 24 or 26); and calculating a velocity-normalized integrated signal as a function of a scan velocity and the integrated signal (see column 12, lines 5-25). Kamentsky further discloses (see Figure 4 and column 10, lines 40-55) the channels (strips) are disposed in a linear array. In addition, Kamentsky discloses (see Figure 1 and column 10, lines 40-55) using a stepper motor (46, 47) to cause a relative motion between the scan window (sample) and the integrating device (20, 24 or 26). Kamentsky also discloses (see Figure 6) detection of a fluorescence emission and wherein the fluorescence emission is stimulated by a laser (see column 6, line 48).

Regarding claims 16, 26, 27, Kamentsky discloses (see Figure 1) an apparatus for scanning a plurality of channels or one or more channels comprising: means for detecting (20, 22, 24 or 26) an integrated signal across a scan window (entire sample 28) comprising a plurality of channels or one or more channels (strips) using an integrating detector; and computer means (see Figure 2) for receiving the integrated signal and determining a scan velocity and for calculating a velocity-normalized integrated signal as a function of the scan velocity and the integrated signal (see column 12, lines 5-25).

Regarding claims 17 and 19, Kamentsky discloses (see Figure 1) an apparatus for scanning a scan window having one or more channels comprising: an integrating detector (20, 24 or 26); a scanner (18) for effecting a scanning of the integrating detector relative to the scan window (entire sample 28) comprising one or more channels (strips); wherein an integrated signal is detected by scanning the integrating detector relative to the scan window and a computer (see Figure 2) for receiving the

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integrated signal and for determining a scan velocity and for calculating a velocity-normalized integrated signal (see column 12, lines 5-25). Kamentsky further discloses (see Figure 1) the scanner comprises a stepper motor (46, 47).

Regarding claim 21, Kamentsky discloses (see Figures 1-3) method steps comprising: detecting an integrated signal across a scan window (entire sample 28) comprising one or more channels (strips) using an integrating detector (20, 22, 24 or 26); and calculating a velocity-normalized integrated signal as a function of a scan velocity and the integrated signal (see column 12, lines 5-25). The method steps are inherently provided in a program storage device as the steps are automated and carried out by a computer (see Figure 2).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-9, 11-13, 18, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamentsky.

Regarding claims 6-9 and 20, Kamentsky further disclose (see columns 1 and 2) detecting cells such as DNA or RNA. Kamentsky does not specifically disclose an electrophoresis system as claimed. However, it is notoriously well known in the art to examine DNA or RNA cells in electrophoresis systems. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the

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claimed electrophoresis system in the apparatus and method of Kamentsky to provide better detection for such systems. Further, the specific type and density of lanes are a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the lanes as claimed in the apparatus of Kamentsky as desired.

Regarding claims 11 and 12, Kamentsky disclose the claimed invention as set forth above. Kamentsky further disclose (see Figure 3) stepping to home positions. Kamentsky does not specifically disclose measuring a channel width or a home position sensor. A channel width is inherently indicated by a step in the stepper motor (see column 10, lines 40-55). In addition, providing sensors to verify a position is well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a home position sensor or measure a channel width in the apparatus and method of Kamentsky to provide home position verification and improve detection, as desired.

Regarding claims 13 and 18, Kamentsky disclose the claimed invention as set forth above. Kamentsky does not specifically disclose a CCD or a photodiode array. However, CCDs and photodiode arrays are notoriously well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a CCD or a photodiode array in the apparatus and method of Kamentsky to provide a more improved and complete detection.

8. Claims 2, 3, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamentsky in view of Lichstein (U.S. Patent 3,952,584).

Regarding claims 2, 3, 22 and 23, Kamentsky further disclose (see column 12, lines 5-25) multiplying the scan velocity with the integrated signal. A scan velocity is inherently defined by a width of the channel divided by time. Kamentsky does not specifically disclose division. Lichstein teaches (see column 9, line 50) normalizing by dividing or multiplying. Thus, Lichstein recognizes that normalization may be performed by either multiplication or division. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to divide the scan velocity as claimed in the method and apparatus of Kamentsky to obtain a smaller and more manageable result, as desired.

9. Claims 4, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamentsky in view of Walker et al. (U.S. Patent 4,520,504).

Regarding claims 4, 24 and 25, Kamentsky disclose the claimed invention as set forth above. A channel width is inherently measured by counting steps. Kamentsky does not specifically disclose subtracting a detector offset. Walker et al. teach (see claim 8, lines 19-30) subtracting a median background level (offset level) to improve detection. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to subtract a detector offset as claimed in the apparatus and method of Kamentsky to improve detection.

Reissue Applications

10. The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Allowable Subject Matter

11. Claims 28-30, 45-46, 52, 53, 60 and 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 31-44, 48-50, 54-59, 62-65 are allowed over the prior art of record.

13. Claims 47 and 51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: an apparatus and method for scanning a scan window as claimed, more specifically in combination with: determining an integration time for the integrated signal and dividing the integrated signal by the integration time is not disclosed or made obvious by the prior art of record.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
December 3, 2002



Thanh X. Luu
Patent Examiner